

Intermediate Excel

**Version:
XP/2002-2004**



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UNIT 1-Formulas

Mathematical Calculations

In Microsoft Excel, you can enter numbers and mathematical formulas into cells. When a number is entered into a cell, you can perform mathematical calculations such as addition, subtraction, multiplication, and division. When entering a mathematical formula, precede the formula with an equal sign. Use the following to indicate the type of calculation you wish to perform:

+ Addition

- Subtraction

* Multiplication

/ Division

^ Exponential

Using Order of Operations with Mathematical Calculations

When you perform mathematical calculations in Microsoft Excel, be careful of precedence. Calculations are performed from left to right, with multiplication and division performed before addition and subtraction. Example:

1. In a blank cell, type $=3+3+12/2*4$.
2. Press Enter.

Microsoft Excel divided 12 by 2, multiplied the answer by 4, added 3, and then added another 3. The answer, 30, displays in the cell.

To change the order of calculation, use parentheses. Microsoft Excel calculates the information in parentheses first.

1. In a blank cell, type $=(3+3+12)/2*4$.
2. Press Enter.

Microsoft Excel added 3 plus 3 plus 12, divided the answer by 2, and multiplied the result by 4. The answer, 36, displays in the cell.

More involved formulas can be added by adding more sets of parentheses. Example:

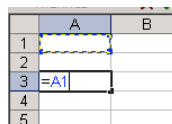
$$=((3+3+12)/2)+(A1-A6)+5*D7$$

Excel will first add $3+3+12$, then divide by 2. It will add that answer (9) to the difference of cell A1 and A6. (X in this example) Lastly, it will multiply 5 by cell D7 and add it to X.

Linking formulas to other cells

You can link a formula to another cell by typing = followed by the cell location.

Example: $=A1$.



In this example, the formula in cell A3 equals the value in cell A1.

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You can also use this with other formulas. Example:

1. The formula =A1+B1 will equal the amount in cell A1 plus the amount in cell B1.
2. If the amounts in those cells change, the formula will remain the same and add the two new amounts.

Absolute Cell Addressing

An absolute cell address refers to the same cell, no matter where you copy the formula. You make a cell address an absolute cell address by placing a dollar sign in front of both the row and column identifiers. You can do this automatically by using the F4 key. To illustrate:

1. Move the cursor to cell C10 and type =.
2. Use the up arrow key to move to cell C7.
3. Press F4. Dollar signs should appear before the C and before the 7.
4. Type +.
5. Use the up arrow key to move to cell C8.
6. Press F4.
7. Press Enter. The formula is recorded in cell C10.

Linking formulas to other sheets

You can link a formula to another sheet in the same file by following these steps:

1. Begin typing your formula. When you are ready to add the cell location click on the other tab, then click in the cell you want to link.
2. Click enter/return. This will complete the formula on the original tab.
3. You can add to the formula once you are back in the original tab by clicking in the tab with the formula and working in the formula bar.

Linking formulas to other files

1. Open both files you would like to link.
2. Follow the steps for 'linking formulas to other sheets, however instead of clicking to the other tab, click in the cell location in the other file.

UNIT 2-Basic Functions

Prewritten formulas in Excel are called functions. Functions are different from formulas because the value is supplied but not the operators, such as +, -, *, or /.

Example: You can use the Average function to find the mean of a set of numbers/cells. When using functions, apply the following:

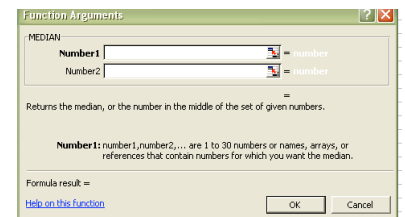
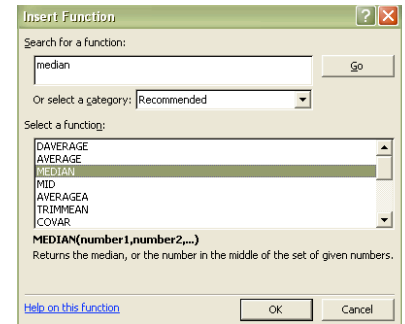
- Use an equal sign to begin a formula.
- Specify the function name.
- Enclose arguments within parentheses.
- Use a comma to separate arguments.

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Using a Function

1. Go to Insert/Function
2. Click the function you would like to insert in the 'Select a function' box. (If the function you are looking for does not appear in the box, type the name in the 'Search for a function' box and click 'Go'.)
3. Click OK. The Functions Arguments dialog box opens.
4. Type your cell range (ex: C1:C3) in the Number1 field, if it does not automatically appear and click OK.

Note: You can apply functions to noncontiguous cells by separating the cell locations with commas or clicking on the cells you wish to add. (Ex: B1, B5, E2, F3)

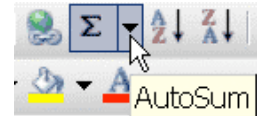


The Auto Sum Icon

The AutoSum icon on the Standard toolbar automatically adds a column of numbers.

The following illustrates the SUM function:

1. Go to cell F1.
2. Type 3. Press Enter.
3. Type 3. Press Enter.
4. Type 3. Press Enter.
5. Click the AutoSum button, which is located on the Standard toolbar.
6. F1 to F3 should now be highlighted.
7. Press Enter. Cells F1 through F3 are added.



Calculating an Average

You can use the AVERAGE function to calculate the average of a series of numbers.

1. To find the average of cells B1-B3,
2. Type =AVERAGE(B1:B3).
3. Press Enter. The average of cells B1 to B3 will appear.

Calculating an Average by Using the Sum Icon

In Microsoft Excel XP, you can use the Sum icon to calculate an average.

1. Click the drop-down arrow next to the Sum icon.
2. Click Average.
3. Highlight your cells you want to average and press enter.

Median and Mode

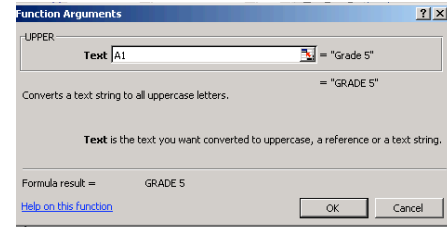
The median and mode can be found by using the 'Median' and 'Mode' functions. Follow the directions above for 'Using a Function'. Type Median or Mode in the 'Search for a function' box. Select it in the 'Select a function box and click 'OK'.

Upper/Lower/Proper Functions

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These functions are useful to change text in a cell/column to all lower case, all upper case or Upper and Lower case (Proper).

1. Insert a new column next to the column you would like to change.
2. Click in the first cell below the header row (if there is a header row).
3. Go to: Insert/Function
4. Type the function (Upper, Lower, or Proper) you would like to use in the box that says "Type a brief description of what you would like to do"
5. Then press Go.
6. The function you chose should appear in the box below.
7. Click the function name and click OK.
8. A new box will appear.
9. In the "Text 1" box, type the cell location of the first cell on the column you would like to change.
10. At the bottom of the pop up box, there is a "Formula ="



- a. This shows you what your new column/cell will look like.
11. If this is correct, click OK.
 12. Your new column should have the first cell filled in with what you were trying to accomplish.
 13. Drag the formula down to the bottom of the column information
 14. You should now have a new column with your new formatting change.
 - a. Highlight your new column
 - b. Copy the entire column
 - c. Paste Special/Values over the column in the same place you copied it.
(See *Copy/Paste Special-Values* instructions on page 7.)

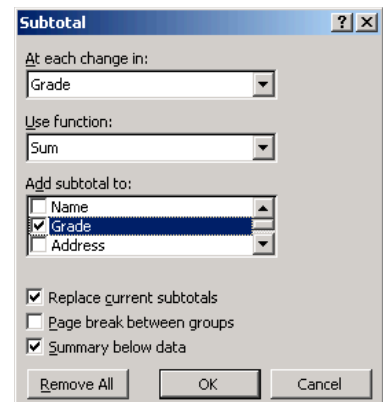
Subtotals

Microsoft Excel can automatically calculate subtotal and grand total values in a list. When you insert automatic subtotals, Excel outlines the list so you can display/hide the detail rows for each subtotal.

To insert subtotals, sort your list so that the rows you want to subtotal are grouped together. You can then calculate subtotals for any column that contains numbers.

Subtotals can be added to a set of data

1. Highlight your data you want to subtotal.
2. Go to Data on the toolbar, click Subtotals.
3. Decide which subject/header you want the subtotals to go to. In this example, the subtotals would be inserted after 'Each change in' Grade. (If this were a class list for a school, you could add subtotals to add up the number of students in each grade.)



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4. Choose how you want to subtotal the information (Add, Average, etc.). In this example, you are using the Sum function to add.
5. The last box asks where, or what column, you want to add the subtotal to.
6. Click Ok.

To Remove Subtotals

1. Highlight the area you want to remove the subtotals from.
2. Go to Data/Subtotals and click 'Remove All'.

UNIT 3-Formatting and Editing

Edit Functions

Edit Replace

Use this task to change a character or characters in an entire column or spreadsheet.

1. Highlight the column you would like to make the change in.
2. Go to Edit on the tool bar, then Replace. A box will pop up.
3. In the "Find What" box, enter what you would like to replace Example: 555-6666
4. If you would like to remove the hyphen (-), put a - in the "Find What" box
5. In the "Replace" box, enter what you would like to replace it with (If you don't want to replace it with anything and just remove it, leave the "Replace" box empty Otherwise, replace it with the character of your choice! Example: To replace it with a space, hit the space bar in the "Replace" box. This will leave: 555 6666)
6. Click "Replace All".
7. A box will pop up telling you how many replacements it made. Click OK.

Find

Excel will search a database for specific criteria.

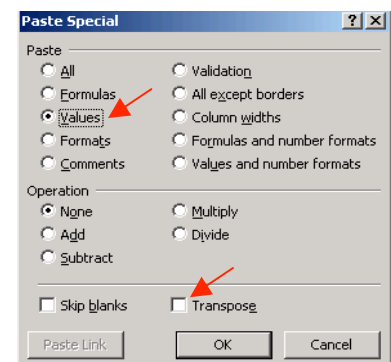
1. Click Edit on the toolbar, then 'Find'.
2. Type what you want to look for in the 'Find what' box and click 'OK'. Example: You can search a school list for a specific student by typing in the name.

Copy/Paste Special

Values

When using formulas and functions, it can be necessary to remove the formula, however keep the results.

1. Highlight the column/cell you would like to remove the formula from.
2. Click Edit, then Copy on the Menu bar.
3. With the same cells highlighted, click 'Edit', then



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'Paste Special'.

4. Choose 'Values' from the options listed and click 'Ok'.

Transpose

Using the transpose feature will allow you to change the direction of a range of cells. For example, if you type the days of the week across a row you can copy the cells, open the 'Paste Special' box, click 'Transpose' and paste the cells going from top to bottom in a column. You can also go from top to bottom and switch to left to right.

	A	B	C	D	E
1	Monday	Tuesday	Wednesday	Thursday	Friday
2					



	A
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday

Applying Formatting Across Sheets

If your sheets have the same type of layout, you may want to apply the same type of formatting to all of them. To select several sheets that are adjacent, first click on the tab of the first sheet in the series; hold down the [Shift] key, and click on the tab of the last sheet in the series. The tabs will all look selected (and appear white). Any formatting action done on one sheet will also occur on other sheets.

If the sheets are not adjacent, click on the tab of the first sheet, hold down the [Ctrl] key and keep clicking on the other tabs. When you release the [Ctrl] key, those sheets are treated as a group.

If you have selected several sheets, and enter information in one cell, it is entered on all parallel cells on the "grouped" sheets.

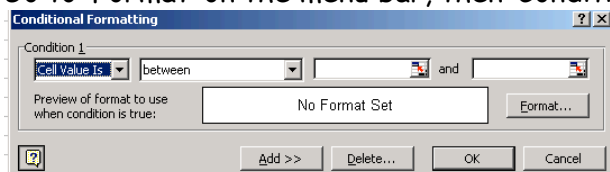
If you want to select all the sheets in a workbook, right-click on any sheet tab and select the option of 'Select All Sheets'. If you are working on a Mac hold the control key down while you click. It will bring up the same short cut toolbar.

Conditional Formatting

Conditional formatting is a format such as cell color, shading, or font that is automatically applied when you specify a rule. For example, if you are creating a grade book you could use conditional formatting to make all grades below a 70% automatically turn red.

To insert conditional formatting:

1. Highlight the cells you want to add formatting to.
2. Go to 'Format' on the menu bar, then 'Conditional Formatting'.



3. Enter your criteria:

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- a. 'Cell value is' refers to the value that you are comparing your results to.
- b. In the second drop down box, choose the criteria that best fits.
Examples: between, equals, less then, etc.
- c. In the next box, enter your cell reference or value.
- d. Click 'Format' to choose the font color, size, shading, etc.
- e. Click Ok.

Imagine each condition as a sentence. 'When the grade (cell value) is less then (criteria) 70% (value), make the text red (condition).'

Adding Conditions

1. Click 'Add' in the Conditional Formatting box and repeat step 3.

Note: Using multiple conditions: If more than one specified condition is true, Microsoft Excel applies only the formats of the first true condition, even if more than one condition is true.

Copy formats to other cells

1. Select the cells that have the conditional formats you want to copy.
2. On the Formatting toolbar, click 'Format Painter', and then select the cells you want to format.

Change or remove a conditional format

Do one or more of the following:

- To change formats, click Format for the condition you want to change.
- To reselect formats on the current tab of the Format Cells dialog box, click Clear.
- To remove one or more conditions, click Delete, and then select the check box for the conditions you want to delete.

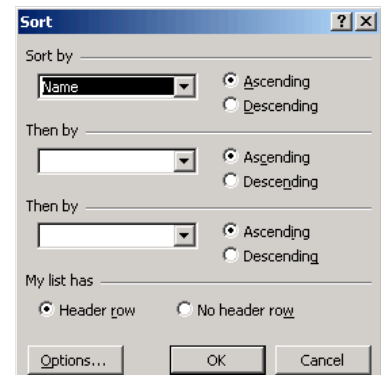
UNIT 4- Viewing Your Data

Sorting

Sorting data is a great way to organize it. Always sort from cell A1. If a data range is highlighted when you sort, excel will sort the highlighted area separately and keep the rest of the data in the same place.

To sort data by Ascending or Descending Order:

1. Click in cell A1.
2. Go to Data on the toolbar and click 'Sort'.
3. Choose what column you want to sort your data by.
4. Click the drop down box in the 'Sort by' box.



5. Choose whether you want to sort by ascending or descending order.
6. Click Ok.

Sorting by multiple categories

1. Follow steps 1-5 above.
2. Click in the 'Then by' box and choose the next category/column you would like to sort by.
3. You can sort by up to 3 categories at a time.

Note: When sorting by multiple categories, excel will sort in the order they were entered.

AutoFilter

Filtering data will show data only associated with specific categories.

1. Go to Data on the toolbar, then 'Filter', then 'AutoFilter'.
2. This will automatically add drop down arrows to each column.
3. By clicking the dropdown box, you can filter data to show a specific data set separated by category. Example: Filtering by 'Grade' on a class list of K-8 would allow you to choose to filter by any grade between K-8. Therefore, you could choose to view only 4th grade students.

	A	B	C	D	E	F
1	Name	Grade	Address	City	State	Zip

To remove AutoFilter

1. Go to Data on the toolbar, then 'Filter', then 'AutoFilter'.
2. This will automatically remove the filters.

UNIT 5- Printing

Printing

The simplest way to print is to click the Print icon located on the Standard toolbar. Dotted lines will appear on your screen. The dotted lines indicate the right, left, top, and bottom edges of your printed pages.

Print Preview

There are many print options. You can select print options in Page Setup or in Print Preview. In Print Preview, you can see the results of your selections onscreen. You can use print options to:

- Determine whether to print landscape or portrait.
- Scale your document. If your data is small in comparison to the page, you may want to scale upward so the data fills the entire page. If your data is too large to fit on the page, you may want to scale downward.

- Specify how many pages wide and how many pages long you want your printed document to be.
- Select the paper size and print quality.
- Set the first page number.

If you choose the Margins tab, you can:

- Set the size of your margins including your header and footer margins.
- Center your spreadsheet horizontally and/or vertically on the page.

To Create a Custom Header:

Click the Custom Header or Custom Footer button to customize your headers and footers. Choose where you want your header to be located: Use the Left Section to place your options on the left side of the page, the Center Section to place your options in the center of the page, and the Right Section to place your options on the right side of the page. Type your Custom Header in the box and click OK.

Rows to Repeat

The Sheet tab has options that allow you to choose which rows and columns will repeat at the left and the top of the page. It also has options that allows you to determine whether gridlines and/or row or column headings print

Page Break Preview

You can view the area that will fit onto each page by going to View on the toolbar and clicking Page Break Preview.

Click and drag the blue lines to adjust where the pages will print.

Click on View, then Normal to get out of Page Break Preview mode.